

P1.007

### The antidepressant effects of electro-acupuncture on the associated protein of hippocampal neurons filtered by biotin label-based antibody array

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**Purpose:** This study aim on the associated protein of hippocampal neurons in rats with depression, filtering out the possible target of acupuncture by biotin label-based antibody array.

**Methods:** 1. Established model: 30 SD rats were randomly divided into 3 groups: control group, model group, EA group. In addition to the control group, the remaining two groups were modeling 28 days by chronic unpredictable mild stress combined with solitary raising methods to establish rat depression model. 2. Interventions: EA was given at points Baihui (Du 20), Yintang (Extra) for twenty minutes (intermittent wave, 30 min) 1 hour before the modeling. 3. Behavioral detection: Behavioral tests were given to evaluate if the model is successful. 4. Index detection: Using biotin label-based antibody array to detect the protein expression of hippocampal neurons in rats with depression.

**Results:** 1. Effects on rat behavior: After 28 days, compared with the control group, behaviors were all significantly reduced. Compared with the model group, weight of EA group was significantly increased, sugar intake were significantly higher, crossing number of grid were significantly increased, standing times were also. 2. Expression of proteins in neurons: compare to the control group, the protein expression of RAGE and Activin A in the model group are upregulation (fold change = 1.356, 1.240). Compared to the model group, RAGE and Activin A expression are downregulation in EA group (fold change=0.617, 0.624). Expression of proteins in astrocytes: the protein expression of CNTF Ra and EGFR in model group are upregulation to the control one (fold change=1.503, 1.373). But they are downregulation in EA group to the model group (fold change=0.728, 0.505).

**Conclusion:** 1. EA may can improve behavioral abnormalities in rats with depression. 2. Expression of RAGE, ActivinA, CNTFRa, EGFR in model group have the increasing trend, and EA may can reduce this trend. 3. This study filtered out some possible targets of acupuncture.

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### Hippocampal memory enhancing activity of pine needle in scopolamine-induced mouse model

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**Purpose:** We evaluated the neuropharmacological effects of 30% ethanolic pine needle extract (PNE) on memory impairment caused by scopolamine injection in mice hippocampus.

**Methods:** C57BL/6N male mice (12 weeks old) were orally pretreated with PNE (25, 50, or 100 mg/kg) or tacrine (10 mg/kg) for 7 days, and scopolamine (2 mg/kg) was injected intraperitoneally. In order to evaluate memory function, the Morris water maze task was performed for 5 days consecutively. Oxidant-antioxidant balance, acetylcholinesterase (AChE) activity, neurogenesis and their connecting pathway were determined in hippocampal tissues and/or sera.

**Results:** Scopolamine appropriately increased the escape latency and cumulative path-length but decreases the time spent in target quadrant, which were ameliorated by pretreatment with PNE. Pretreatment with PNE attenuated the increased level of reactive oxygen species, malondialdehyde and AChE activity induced by scopolamine injection. Depletion of antioxidant capacities in hippocampus were also recovered by pretreatment with PNE. Consistent with above results, 4HNE (4-Hydroxynonenal)-positive stained cells were ameliorated in mice hippocampus pretreated with PNE. Pretreatment with PNE moderately increased the number of proliferating cells and immature neurons against suppression of neurogenesis by scopolamine in subgranular zone, which was confirmed by ki67- and DCX-positive stained cells. The brain-derived neurotrophic factor (BDNF) and phosphorylated cAMP response element-binding protein (pCREB) were facilitated for improving memory function by PNE pretreatment, which was confirmed by protein and gene expression results.

**Conclusion:** These findings suggest that PNE could be a potent neuropharmacological drug against amnesia, and its possible mechanism might be modulating cholinergic activity via CREB-BDNF pathway.

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### Anti-adipogenic and Antioxidant Effects of The Traditional Korean Herbal Formula KE-06: An in vitro Study

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**Purpose:** KE-06 has traditionally been used to treat chronic gastritis, gastric ulcers, gastroparesis, indigestion, diarrhea,

